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ABSTRACT

The designs, procedures, and findings of a number of studies related to the writing processes of elementary school children are reviewed in this paper. The first section of the paper discusses the rationale of the literature review and the search procedures employed, while the second section summarizes the characteristics of the studies examined under the following headings: (1) writing processes in the prewriting, composing, and postwriting phases; (2) developmental stages in the writing process; (3) environmental variables; and (4) internal variables. The final section of the paper discusses implications of the research reviewed for classroom practices; for future research, including a list of questions researchers need to investigate; and for future reviews of writing process research. (FL)

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THE WRITING PROCESSES OF YOUNG CHILDREN: A REVIEW OF RELATED RESEARCH

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THE WRITING PROCESSES OF YOUNG CHILDREN:
A REVIEW OF RELATED RESEARCH

Nearly all of the research on writing has looked at writing products rather than at the process by which they came into being. While there have been attempts to infer from written products how the mind works during the writing process (Kinneavy, 1971; Odell, 1977) and to develop theories about writing (Page, 1974; Ney, 1974; King & Rentel, 1980; Shanklin, 1981), research has generally avoided studies that directly investigate the actual process of writing.

The purpose of this research review is to discuss the designs, procedures, and findings of studies related to an investigation of the writing processes of children. More specifically, questions formulated to guide this review of literature are as follows:

1. According to prior research, what writing processes are inherent in young children's prewriting phase, composing phase, and postwriting phase?

2. According to prior research, what developmental stages of the writing processes of young children have been identified?

3. According to prior research, how are environmental variables such as previous writing instruction, nature of the writing tasks, and the formality or informality of the classroom related to the writing processes of young children?

4. According to prior research, how are internal variables such as sex, intelligence, reading achievement, or prior experiences with writing related to the writing processes of young children?

Primarily, three sources were consulted during the development of these review questions: applicable theory, prior reviews, and primary research concerning the topic of writing processes and writing development.

Theories related to child development would indicate that writing processes are developmental. Specifically, the work of Piaget (1957) suggests that children's writing processes may change as a result of being able to conceptualize more, elaborate on concepts, and construct more complex thoughts. Alvarez and Orellana (1975,1979) discuss Piaget's theory concerning perception, corporal function, and temporary spatial function as well as the preoperational period, period of concrete operations, and period of formal operations as allowing an elaboration and structuring of functions necessary to read and write. As a child progresses through the developmental stages, the processes which that child may utilize during the prewriting, composing, and postwriting phases may differ. Applebee (1981) also contends that a number of distinct stages exist in the writing process, stressing that errors are a natural part of these stages and often indicate progress from one stage to another. Ferreiro (1977) has proposed that four to six year old children's conceptualizations about the writing system have at least

six levels. These levels range from writing only two nouns in their sentences, to writing all the nouns but not the verbs, to writing all the words of the sentence, and so forth.

Prior reviews of the related literature were useful when forming questions to guide this review of research. A review conducted by Braddock (1968) indicates that researchers need to focus upon extensive developmental issues to provide an extended view of children in the process of writing in the classroom. In another review of literature conducted as far back as 1929, Lymar offered a critical analysis of several research studies on composition which "measure pupil products and assume that by doing so they are evaluating the manifold intangible processes by which those products were attained." Studies concerned with the actual observation of the writing processes during the prewriting, composing, and postwriting phases of writing, therefore, will guide this review of related research.

Primary research concerning the writing processes was also consulted when formulating questions to guide this review of literature. Of particular import was the landmark study conducted by Donald Graves (1973), who charted a most comprehensive expedition into the description of the variables influencing the writing processes of seven-year-old children. Questions guiding this review dealing specifically with the variables

internal and external to children that may influence the writing processes of children were formed after a discerning examination of his research.

Search Procedures

Since the results of an integrative review of research are necessarily related to the studies considered and eventually selected to be included in the review, the strategies regarding the search for appropriate studies are reported in this section.

Several search strategies were utilized to assure as thorough a review as possible. The reviewer consulted an information retrieval system, several indexes, numerous bibliographies, and previous reviews of literature. Although a small number of studies were previously known by the reviewer and thus will no be reported as found in the search procedure, most studies were located through the search strategies which follow.

Information Retrieval System

The information retrieval system used to locate research studies for possible inclusion in the review was that of Bibliographic Retrieval Services, Inc., which searches documents indexed in the Current Index to Journals in Education (CIJE) and Resources in Education (RIE). Two categories of descriptors were used to search the titles of the documents for possible inclusion in this review of literature. These categories were 1) writing processes and

2) writing research, and terms synonymous with these two descriptors. A third category was added to eliminate many of the unrelated documents. This category of descriptors excluded documents related to curriculum development, vocational training and second language education.

The search resulted in numerous documents for possible inclusion in the review of literature. Regardless of the careful selection of descriptors, however, most of these documents were excluded from this review of research for one or more of the following reasons:

1. The subjects in the research study were secondary students, college students, or adults.
2. The research conducted did not relate to the processes of writing, but rather to writing products or samples produced by children.
3. The research studies were not concerned with the questions guiding this review of literature.

Use of the information retrieval system resulted in identification of several inquiry efforts that focused on writing as a process. A major study, presenting findings from data collected during a two year study funded by the National Institute of Education (Graves 1981a); and a case-study investigation examining the writing processes of sixth-grade students (Nolan, 1979) were identified.

Indexes

Indexes of sources not included in the retrieval system were also consulted during the search for related

research studies. These indexes include Psychological Abstracts, Comprehensive Dissertation Index, and the index Language and Language Behaviors. Although no relevant research studies were identified during a search of Psychological Abstracts or Language and Language Behaviors, three doctoral dissertations were identified as directly investigating one or more of the questions guiding this review of literature. Cartwright (1979), identified and described the writing behaviors of fifth grade students; Jobe (1974), interviewed 90 second, fourth, and sixth grade students about the origin of their theme choice; and Schwartz (1980), interviewed six writers of all ages concerning the impetus for beginning or revising drafts.

Bibliographies

Two bibliographies, of the several searched, proved to be quite helpful in locating existing studies concerning the writing processes of children. Though most of the studies included in the bibliographies were also included in the more comprehensive bibliographic listings generated by the information retrieval system, this inclusion acted as a validation check regarding the key word descriptors used during the automated search. Also, bibliographic listings included unpublished documents, documents not included in CIJE or RIE, and entire texts not searched by the information retrieval system.

The first bibliography consulted was compiled by

Goodman (1979) as a complete document. Her "Written Language Development Bibliography", which included 39 articles, books, and unpublished papers concerning productive writing, was compiled for and distributed during an Internaional Reading Association Preconvention Institute on written language development. Though most of the references included in this bibliography are not directly related to questions guiding this review, developmental studies conducted by Hildreth (1936) and Ames and Ilg (1951) were identified through this bibliography.

An annotated bibliography developed by Dieterich and Behm (1981) identified nineteen studies related to preschool and elementary writing. Of these, one research study not previously identified concerned itself with the writing process. In this study, included for review, Calkins (1980) described the rewriting strategies of third grade children.

Previous Reviews

Three previous reviews of literature concerning the writing process identified many related research studies included for summary or for additional review here.

A review of research conducted by Graves (1973) revealed three studies directly concerning the processes of writing. Two studies, Emig (1969) and Sawkins (1970), were concerned with pupils' approaches to writing. A third study, Holstein (1970), investigated pupils' strategies for

and effects of using metaphor while composing. These three studies, though related to the writing process, were extensively reviewed by Graves and do not concern themselves directly with the questions guiding this review of research on the writing processes of young children and thus will not be included here for review.

A concise review of literature conducted by Atwell (1981) as a result of a study of the interrelationship of reading and writing noted four research studies to have examined writing as a process: Emig (1969) and Graves (1973), both mentioned previously; Stallard (1972), and Mischel (1974). Stallard observed the writing processes of good writers in grade twelve; Mischel utilized a case-study approach to describe the processes of a twelfth-grade writer. Though the studies represent in-depth analyses of older writers' composing processes, they will not be included in this review, which is limited only to the proceses utilized by young children.

The last review of literature (Petty, 1978) consulted during the search procedures examined some findings of recent research on the writing process. One study not previously located was identified through this review: Sawkins (1970) interviewed fifth grade students to investigate their writing processes. The findings and conclusions of this study are included in this review of literature; however, for a substantial review of the entire research investigation, the reader is urged to consult

Petty's extensive integrative review.

Characteristics of the Studies

The characteristics of the research studies reported in the literature are summarized in this section. In some cases the reviewer has included research reports located through the search procedures which were based upon preliminary findings. Inclusion of these studies is important to provide the reader with a notion of current, ongoing research directions and hypotheses. However, the findings from these reports must be considered tentative. In each case, preliminary reports will be indicated as such in the review.

The Writing Processes in the Prewriting, Composing and Postwriting Phases

Three studies have attempted to describe the writing processes utilized by children in the prewriting, composing, and postwriting phases. Graves' dissertation (1973) documents the different behaviors exhibited by seventeen seven-year-old children through naturalistic observation of children writing; Calkins (1980) observed, video-taped and interviewed seventeen children in grade three to describe rewriting strategies; and Sawkins (1970) interviewed fifth grade children concerning their written expression.

Graves' dissertation. Graves' dissertation (1973) marked one of the first thorough, naturalistic

investigations of the processes used by young children while writng. This investigation opened the door to new research directions in writing, focusing on children's writing processes rather than written products. His study examined data from children (N=94) in two formal classrooms and two informal classrooms; from the writing processes of a selected group of students (N=17); from the children's views about writing (N=25); and from case studies (N=8). By utilizing an inquiry procedure which employed four distinct yet interrelated phases, ranging from a phase incorporating large group data to a phase incorporating case-study data, Graves originated a research methodology which allows data from one area of investigation to complement, enlarge upon, and substantiate the findings from each of the other phases.

The most important aspect of Graves' study was the extent to which he was able to use a case-study design, backed with added depth from the data of selected children and from the data from large groups, as an effective means for determining the numerous variables that influence children's writing. With case-study data on eight children, Graves was able to identify behaviors common to all of these children as well as behaviors unique to each child.

By extending his data base across both formal and informal classrooms, Graves was also able to draw conclusions involving the classroom environments. Findings

from this aspect of the dissertation are reported in the review section dealing with variables external to children which seem to bear upon children's writing.

Findings which directly related to the identification of the writing processes inherent in the prewriting, composing, and postwriting phases are outlined in Table 1.

Table 1 Writing processes inherent in the prewriting, composing, and postwriting phases of second grade writers.

Phase	Definition	Processes
Prewriting	Immediately precedes the writing of the child.	1. Contribution of room stimuli to writing choice. 2. Rehearsal factors as in artwork. 3. Discussions with other children and the teacher.
Composing	Begins and ends with the actual writing of the message.	1. Spelling. 2. Resource use. 3. Accompanying overt language (if any). 4. Pupil interactions. 5. Proofreadings. 6. Rereadings. 7. Interruptions. 8. Erasures. 9. Teacher participation.
Postwriting	All behaviors recorded following completion of the writing	1. Product disposition. 2. Proofreading. 3. Contemplation of the product.

Graves used the factors identified to monitor the three phases of the writing episodes. Two general classes of writers were identified through the examination of these data. Writers developmentally high in each of these categories seemed more reflective in general. These children had a strong notion of what they intended to write, composed rapidly, seldom used accompanying language, and sometimes reflected upon their completed product. Writers in the lower range of the processes were more reactive in nature. These writers composed slowly, struggled at the word level unit, reread to maintain their place, and seldom reviewed beyond the level just written.

Rewriting strategies. A second important study identified the processes used by third grade children when rewriting (Calkins, 1980). This study used naturalistic observation and video-tapes, interviews and intervention techniques. Specifically, Calkins observed four third graders while they wrote on a day-to-day basis for a year, encouraging them to think aloud while they composed or rewrote. She also observed the other children as they wrote, studied their writing folders, and observed behaviors during rewriting. A simulated rewriting exercise was given to each child to observe how information was incorporated into a piece of writing. Finally, data were collected concerning the total number of drafts for each piece of writing, how much material was new in each draft, and how much material was kept from a previous draft.

Calkins suggested that third graders in the study could be grouped according to four kinds of rewriting. Random drafting involved writing successive drafts without looking back at previous drafts in a random, undirected process; refining was the act of recopying with changes only in spelling or penmanship; transition was the period during which children moved between refining drafts and abandoning drafts, continually beginning new ones; interacting was the revision stage resulting from interaction between the writer and draft, between the writer and the internalized audience, and between the writer and the subject.

Calkins' study is significant since it adds descriptive depth to one of the writing processes identified in Graves' dissertation. The research methods used in this study also deserve some comments. Calkins utilized the case study approach; again, this design is the appropriate choice to observe the actual process of writing. But, she also added weight to the case study findings by observing and collecting writing from other children in the classroom, interviewing the writers, and designing a unique simulated rewriting exercise. The longitudinal aspect of her research study is also to be commended: a year of observation in the school represents an outstanding observation period for educational research. Her procedures and methodology are worth further attention by others concerned with the writing process.

Sawkins' interview of fifth graders. Sawkins (1970) interviewed fifth grade children to investigate what they did when writing compositions. Of particular interest was how the writing processes of children whose compositions were judged by teachers to be of high quality differed from the writing processes of children whose compositions were judged to be of low quality. Essentially, she concluded that the only significant difference between the processes of the two groups was the concern of the better writers about the content of their expression and about mechanics (sentence structure, paragraphing). Sawkins also reported that the following processes were inherent to the fifth-grade students' writing:

1. Children do not have a complete composition in mind before they begin to write.
2. Children do not make notes or outlines before writing.
3. Content is considered in both the prewriting and composing phases.
4. Children seldom ask for help from teachers, except for questions concerning spelling.
5. Proofreading is a process used by some, but not all, children.

Other studies. Three other research studies were located in the search procedures that may describe the writing processes of young children. However, these studies were unable to be located. Nolan (1979) used the case study approach to describe the writing processes of six sixth-grade students. Cartwright (1979) and Schwartz

(1980) both conducted dissertations on the writing process, examining selected fifth-grade students and a wide range of writers, respectively.

Developmental Stages in the Writing Process

Most of the literature regarding the writing process of young children has been concerned specifically with developmental aspects (see Table 2).

Giacobbe study. A most notable study conducted by Mary Ellen Giacobbe (Graves & Giacobbe, 1982) examined the development of first grade writers during the last six month period of the school year. Ten of Giacobbe's twenty-three students, distributed among low, middle, and high performance levels, were interviewed concerning their choices of topic, plans for writing, reflections about their writing, and plans for the completed product. Six standard questions were developed, although Giacobbe further prompted students when necessary. Data from two of the children, representing the low and high performance group, were reported in terms of "the three most important sections to monitor child change through questions: information, process, and standard."

The information the children used developed from a non-specific pre-conception of what will be contained in their writing to a more elaborate, concrete pre-conception of what will be contained in their writing. Also, children's sense of options about their information was

Table 2 Observed developmental writing processes of young children reported in various research studies.

Study	Rehearsal	Revision	Motor/ Control	Oral Language	Focus Topic
Ames & Ilg (1951) N=5-45			X		
Graves (1979a) N=20	X			X	
Graves (1979b) N=16	X	X		X	X
Graves (1979c)		X			
Graves (1982)					X
Graves & Calkins (1979) N=1	X	X			
Graves & Calkins (1980) N=2					
Graves & Giacobbe (1982) N=10		X			X X
Hildreth (1936) N=170			X	X	

viewed as developmental. Children moved from being limited to a single notion of how a piece of information may be written to realizing that they are in control of a variety of options for the development of a piece of writing.

The process of writing was monitored by asking the subjects about their composing before writing and after writing throughout the six month period. Developmentally, children become more clear about what processes they use when contemplating what will be written and when contemplating what will be done with their writing products. Children seem to progress from awareness of an external behavior they exhibit when contemplating what will be written (i.e., drawing) to awareness of the internal process that must be used (i.e., thinking) to awareness of an external counterpart of what they actually do to describe their writing process. Children also develop a sense of what can be done with their writing products: children advance from the notion that a piece of work is completed at one sitting to the more advanced hierarchical level of revising or adding material, to the still more advanced concept of deletion of information irrelevant to the main idea.

Following each interview, children were asked how they felt about each piece. Children were able to set "standards" for their papers in a developmental pattern: "feeling" that the paper is good, followed by introducing certain criteria by which a product might be judged (i.e.,

having a lot of information, being enjoyed by other people).

The Giacobbe study warrants a few comments on certain procedural aspects. The study represents one of a few excellent naturalistic inquiries conducted by in-service teachers. Observation techniques were kept unobtrusive and resulted in valid data from which the researchers could draw conclusions. A second feature of this study to be commended was the use of a treatment/observation period of six months. Too often educational research is based upon treatments of unrealistically brief periods.

The report of the study, unfortunately, omitted a few crucial elements. The report does not state 1) the criteria by which students were judged to be performing at low, middle, or high performance levels in writing, 2) how students in each of these levels progressed in writing in respect to children in other levels, 3) how students not chosen to participate in the study, and presumably not being interviewed, progressed in respect to those in the study. The answers to these questions, though not discounting the findings of the study, could easily have given the reader additional, and often necessary, information from the same data base.

Graves: The writing process laboratory. Preliminary findings from a two year research study funded by the National Institute of Education (NIE) have resulted in several reports by Donald Graves concerning developmental

aspects of the writing process (Graves & Calkins, 1979; Graves, 1979a; Graves, 1979b; Graves, 1979c; Graves & Calkins, 1980; Graves, 1982). These findings have more recently been reported in the final report of the research project (Graves, 1981a).

Graves placed primary emphasis upon gathering information when children were actually engaged in the act of writing. Data were gathered from sixteen children (eight in grade one, eight in grade three) in a longitudinal two year study by the use of direct observations and video recordings.

Findings concerning the processes of writing have been summarized from the many preliminary research reports and the NIE final report in Table 3.

Table 3 The developmental changes in within various aspects of the writing of process of young children (grades one through four).

Writing Process	Developmental Changes within Processes
Revision	1. Revision occurs at different levels a. During the prewriting stage b. On paper to revise content c. Orally d. Unconsciously to make sentences smoother, etc. e. Deliberately, as child circles awkward phrases, etc. f. Internally, without overt accompanying language (Graves & Calkins, 1979)

2. A child's revision patterns are shaped by a variety of circumstannces:
   a. Word stability (invented, transition, stable inventions, sight words)
   b. Newness of the revision procedure
   c. Audience response
   d. Purpose of the writing
   (Graves, 1979c)

3. Capacity for revision is demonstrated by a number of behaviors:
   a. Revision in other media forms (drawing, painting, etc.)
   b. Ability to write a series of leads about the same subject
   c. Demonstration of crossing out, arrows, etc., that show that words are temporary
   (Graves, 1979c)

4. Revision is enhanced by
   a. Writing about personal experiences
   b. Choosing their own topics
   c. Reading the products to peers
   (Graves, 1976)

5. Fast writers revise larger units than do slow writers
   (Graves, 1976)

Drawing

1. Drawing prior to writing is a rehearsal for text
   (Graves, 1979a)

2. The use of drawing occurs at three levels in first grade children:
   a. Prior to writing as a rehearsal
   b. After writing
   c. Drawing not necessary

Pre-ideation

Children advance from an inability to plan ahead to complete ideation at the story level.
(Graves & Calkins, 1980)

Focus

Children advance through the following levels of consciousness of problem

	solving: a. Spelling b. Motor/aesthetic c. Conventions d. Topic information e. Revision (Graves, 1982)
Resources	Children advance from complete self-reliance to reliance on outside resources for help with topic information and conventions.
Topic choice	First grade writers develop a temporary barrier when selecting a topic area. Stages include a. No delay (Child draws then writes) b. Short delay (2 minutes, child writes then draws) c. Long delay (5-10 minutes, child aware of audience) d. Little delay (aware of variety of choices) (Graves, 1979c)

Graves' research represents the largest single endeavor into the writing process of young children. The methodology used to outline this study was outstanding. Graves utilized a naturalistic paradigm to observe the writing process of sixteen children. This research paradigm is a commendable choice for the research questions concerning writing processes to be answered in this study since it allows for direct observation of a few case studies. The design also entails a longitudinal study of intact groups of children progressing through grades one and two and children progressing through grades three and

four. Although the ideal longitudinal study would focus on the same subjects from grades one through four, developmental studies of this nature are rarely possible in education; Graves' research design was a desirable compromise. Hopefully, the funding and exposure received by this outstanding study will encourage other writing researchers to consider designs of this nature when examining the writing process.

Two motor development studies. Two studies of writing behavior, though peripherally related, are included here because of their landmark expedition into the area of motor control in children in the act of writing and because of certain commendable features in their designs.

Louise Ames and Francis Ilg (1951) analyzed 50 preschool children of above average to superior intelligence to determine "the normal course of development" in writing behavior. Children were observed in the home, nursery school, and school at six month intervals from the ages of 36 weeks to approximately 10 years. Findings consist of a detailed account of the changes which typically occur in the printing and "writing" (cursive writing) of letters, words and numbers (see Table 4). This longitudinal study of such a large number of subjects in various settings offers well-grounded insight into the developmental aspects of children's motor development while writing.

Table 4 The development of the writing behaviors and motor control of children ages 36 weeks to 10 years. (Ames & Ilg, 1951)

Age in Years	Behaviors Exhibited by Child
3.0	Some imitation of actual writing
3.5	Capital letters may be made very large and irregularly
4.0	First letters of familiar words may be printed spontaneously
5.0	Printing may be in horizontal or vertical alignment
5.5	Short words may be spontaneously printed as well as name and numbers
6.0	Prints capitals
7.0	Forms words or sentences
8.0	Writing single words (majority)
9.0	No longer prints, writing neater

A second study of motor control during the writing process was conducted by Gertrude Hildreth (1936). Hildreth studied 170 above average children aged three to six who were entering or enrolled in a private New York school. Developmental stages were identified in terms of motor control, handedness, comprehension of directions and compliance with requests. As well as delineating the writing development of the children based on samples, Hildreth also reported factors which shed light on the

development of interest in the writing process.

> "[Children] become interested in the writing process and make inquiries about it. They reach a point in their development where they very much want to imitate the adults' writing activities They show insight and autocriticism of their own immature efforts to strive to improve. Improvement that results from this inner urge which is largely the result of maturation in a literate environment is fast or slow depending upon the child's learning ability, the interest he takes in the process, the stage of maturation he has reached when this interest is shown and the help he gets in recognizing and correcting his errors" (Hildreth, 1936 p. 301).

Hildreth's study, an important contribution at the time, is one of the first studies to suggest that research in writing and the teaching of writing should begin to look at issues other than "penmanship". The study examines a large population of children, by use of intact groups, between the ages of 3-0 and 6-11. Apparently some reporting errors were overlooked, since the results of the study indicated data drawn from children up through nine years of age. The sample was also drawn from a somewhat unique group of above average private school children. Threats to the generalizability of the findings could have been eliminated through the use of a more representative sample.

Environmental Variables

Only two studies were located that were partly concerned with the environmental influences on the writing processes of young children. A minor consideration in Graves' dissertation focused on the effects that the nature

of the writing task and the formality or informality of the classroom has on the writing process of young children. Also, a dissertation conducted by Jobe (1974) used an interview technique to determine the sources of children's ideas for writing.

Graves concluded that the informal classroom environments (classrooms in which children had a great amount of input as to class assignments, etc.) gave children greater choice in their writing and produced more writing. Also, children who were allowed to choose whether or not to write as well as the topic of writing tended to write more frequently and write longer compositions than children who received specific assignments and/or designated times to spend writing. Graves also concluded that the products written by children during assigned writing tasks were more inhibited in terms of their range of topics and content of information than were unassigned writing products.

In a dissertation by Jobe (1974) children in grades two, four, and six were interviewed concerning the source of their topics for creative writing (N=90). The major influences on their choices (apparently at all levels) was an internal force (i.e. an original idea); minor influences on their choices for topics were direct personal experiences and books. Jobe, whose study was conducted over a ten week period, sampled 866 written compositions of students written at the beginning of each school day, and

interviewed children in a predetermined questioning routine following the ten week period. Questions arise concerning the interview technique involved in this study. Certainly maturation and the tendency for the subjects to forget the source of their topic over a ten week observation period could affect results from the interview which was conducted at the completion of the study. Results from this study seem threatened by this methodological flaw.

Internal Variables

Although numerous research studies have linked aptitudes and sex differences to writing products, no research was located which has probed the relationship between aptitude and/or sex and the writing process.

One aspect of Graves' dissertation (1973) dealt specifically with the writing tasks and theme choices of boys and girls. Boys tended to write more than girls when writing tasks were not assigned; boys generally did not use first person in their writing; and boys' themes tended to deal with extended territory (away from home, neighborhood, or school) more than did girls' themes. However, the reader should note that the findings presented here were drawn from the large group data associated with analysis of the products of student writers rather than from the case study or small group observation of the writing processes of students, as was the focus of this review.

Interpreting Results

As with primary research, it is impossible to do a major review carefully without developing some ideas of implications for researchers, reviewers, and practicing teachers (Jackson, 1980). This section of the review will present conclusions regarding implications for future primary research studies, implications for future reviews on writing process research, as well as implications for classroom teaching practices.

Implications for Teaching

The findings of these studies suggest some teaching practices. However, the suggestions reported here must be considered tentative. The studies reviewed require replication and verification before advocacy of a particular methodology is warranted.

Developmental Aspects. Giacobbe's findings concerning the development of children's expanding sense of options about their writing and pre-conceptions of what will be contained in their writing suggest that teachers should probe children to help them expand their ideas about writing and options for writing those ideas. Teachers should also encourage children to set standards for their writing, and encourage other children to provide feedback.

Graves' findings that revision patterns are shaped by a variety of circumstances suggest that teachers should provide real purposes for writing, opportunities for

audience response, freedom of choice in topics, and encouragement for writing about real experiences. Children should be encouraged by their teachers to focus on the message rather than its form, to realize that words are only temporary.

Environmental/Internal Variables. Graves' findings about writing in informal classroom settings certainly has classroom implications. Also, findings that unassigned writing seems to stimulate boys' writing and results in longer compositions are important for classroom practices.

Research Implications

Suggestions for future reviews. While in the process of doing this review of literature, additional questions arose which need to be answered through another substantial review of literature in the area of the writing process. These questions may be a valuable contribution to other investigators about to do a review of literature.

As reviewers begin the task of doing a review, they need to consider several of the same questions that this review considered, with older children as the focus of the study.

According to prior research, how do the writing processes children use affect the writing products of the children?

According to prior research, how are the reading processes of children related to the writing processes of

children?

According to prior research, do older beginning writers develop similarly to younger beginning writers?

According to prior research, do the invented spellings produced by children in the process of writing relate to the writing processes as a whole, to the reading process, or to teachers' perceptions of children as writers?

According to prior research, what influences early writing in preschool children? What processes do these children use?

Primary research. As researchers study the writing process, they need to try to discover the behavioral differences that are exhibited at different maturity levels. Can classroom environments or instruction affect these behaviors? If so, to what extent?

How do developmentally high writers differ from developmentally low writers? Do developmentally low writers follow the same patterns?

Do good and poor readers have the same writing process?

How do teacher-pupil conferences enhance the writing process? What teacher behaviors foster assigned and unassigned writing? How do other classroom environmental variables affect the writing process?

Does intelligence affect the writing process? If so, to what extent?

How does the home environment influence the writing

process? Can parents "model" writing for their children?

Do the findings concerning the developmental patterns hold up in other environments? Can the findings be generalized to other regions, races, and socio-economic groups?

Can case study procedures be improved upon? Does a video camera yield more effective results? Do children hesitate to write when a camera and tape recorder are present?

These suggestions for future research are only beginnings. Possibilities are nearly limitless. The major point to be made is that research needs to begin asking new questions. Questions must be asked about the writing process itself, not just about the product. The product is just that--a product. It tells us nothing of the process by which it came into being or what went on in the child's mind as it was written. The process, however, is the key to what goes on inside the child.

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